

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-201650

(43)Date of publication of application : 04.08.1995

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(51)Int.Cl. H01G 4/228

H01L 23/50

H03H 9/02

H05K 1/18

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(54) SURFACE MOUNTING ELECTRONIC DEVICE

(57)Abstract:

PURPOSE: To protect a device against stress from a mounting board by bonding a surface mounting device to the mounting board through a buffering material, e.g. a flexible board.

CONSTITUTION: A flexible board 2 is provided with a conductor land at a position corresponding to the terminal of a surface mounting electronic device 1 and the land is connected through a conductor with a terminal of the flexible board 2. When the terminal of the device 1 is connected with the conductor land of the flexible board 2 by spot welding, the terminal of the device 1 is not fixed directly to the mounting board but fixed thereto through the flexible board 2. Consequently, bending or torsional stress of the mounting board is absorbed by the resiliency of the flexible board 2 and it is not transmitted directly to the device 1. This structure protects the surface mounted electronic device against fracture due to bending or torsional stress of the mounting board.

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LEGAL STATUS [Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS  
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[Claim(s)]

[Claim 1] Surface mount electronic parts characterized by connecting with the terminal of these surface mount electronic parts the flexible substrate which possesses a terminal in these surface mount electronic parts in anchoring and this flexible substrate in lead loess type surface mount electronic parts.

[Claim 2] Surface mount electronic parts of the application for patent characterized by adding an elastic sheet to the base bottom of these surface mount electronic parts given in the 1st term of the range.

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DETAILED DESCRIPTION  
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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the improvement for a surface mount electronic-parts terminal area.

[0002]

[Description of the Prior Art] the terminal of the former to surface mount electronic parts -- some surface mount electronic parts -- a conductor -- it was common to have made a part and to have considered as the direct terminal.

[0003]

[Problem(s) to be Solved by the Invention] However, when components were soldered to a mounting substrate according to the situation which reinforcement of a components case cannot reinforce easily with the formation of small lightweight of surface mount electronic parts etc., unexpected big stress was applied to components by a camber, torsion, etc. of a mounting substrate by screw \*\* others of shocks, such as drop, or a mounting substrate, the closure part peeled and technical problems, such as receiving breakage in a soldering part, occurred.

[0004]

[Means for Solving the Problem] Components fixed with solder etc. firmly to the mounting substrate, the camber of a mounting substrate and the stress of torsion were applied to direct components, and since that there is no refuge of stress had led to breakage on breakage soldering of components, the technical problem was solved by the approach of once attaching components in the member which absorbs this stress, for example, a flexible substrate etc., and attaching the terminal of this flexible substrate in a mounting substrate.

[0005]

[Function] In case surface mount electronic parts are fixed to a mounting substrate, components are protected from the stress from a mounting substrate by fixing through an ingredient with buffer action, such as a flexible substrate.

[0006]

[Example] As shown in drawing 1 , the flexible substrate 2 is fixed in spot welding to the surface mount electronic parts 1. It has the land of a conductor in the location equivalent to the terminal of surface mount electronic parts, and even the terminal of a flexible substrate is connected to this flexible substrate with the conductor from this land. By spot welding, the terminal of these surface mount electronic parts and the land of the conductor of this flexible substrate are connected beforehand. The terminal of surface mount electronic parts will not be attached in a direct mounting substrate by this, but it will be attached through a flexible substrate. Although the example stopped by spot welding is shown here, you may stop with soldering and elevated-temperature soldering. Moreover, although a flexible substrate needs not to be covered with the part connected with the terminal of surface mount electronic parts at least, and the part linked to a mounting substrate, there may be a part which is not covered if needed.

[0007] Other examples are shown in drawing 2 . A part for the terminal area of the flexible substrate of drawing 1 is involved in the surface mount electronic-parts bottom. Although the height of components will become high compared with drawing 1 if it is made this appearance, occupancy area on a mounting substrate is made small.

[0008] An example besides one more is shown in drawing 3 . It is the example which covered the bottom of the components of the example of drawing 1 with elastic sheets, such as silicone rubber. If it is made this appearance, compared with drawing 1 , positioning and immobilization of components can be performed easily and firmly. Drawing 4 shows the example which covered the bottom of the components of the example of drawing 2 with elastic sheets, such as silicone rubber. If it is made this appearance, compared with drawing 2 , positioning and immobilization of components can be performed easily and firmly.

[0009]

[Effect of the Invention] Conventionally, as a means to connect substrates, although a flexible substrate is used, even if surface mount electronic parts are firmly fixed to a mounting substrate, in this invention, the camber of a mounting substrate and the stress of torsion are absorbed by the resiliency of a flexible substrate, and do not get across to the body of direct components. For this reason, that the surface mount electronic parts attached in the mounting substrate with the camber of a mounting substrate or the stress of torsion are damaged became that there is nothing. Moreover, breakage of surface mount electronic parts was able to be prevented by adding an elastic sheet to the bottom of surface mount electronic parts. Since surface area of this invention is large, it is effective in a piezoelectric transducer or especially a piezo oscillator.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] Drawing 1 is the perspective view showing the example of a flat this invention flexible substrate.

[Drawing 2] Drawing 2 is the perspective view showing the example which involved the terminal area of the flexible substrate of this invention in the components bottom.

[Drawing 3] Drawing 3 is the sectional view showing the example which covered the bottom of the components of the example of drawing 1 of this invention with elastic sheets, such as silicone rubber.

[Drawing 4] Drawing 4 is the sectional view showing the example which covered the bottom of the components of the example of drawing 2 of this invention with elastic sheets, such as silicone rubber.

[Description of Notations]

- 1 Surface Mount Electronic Parts
- 2 Flexible Substrate
- 3 Elastic Sheet
- 4 Mounting Substrate